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## THE NATURE OF THE AFFECTIVE JUDGMENT IN THE METHOD OF PAIRED COMPARISONS<sup>1</sup>

By M. YOKOYAMA

In a previous article the writer has reported data which show the manner in which judgments of pleasantness are dependent upon the simultaneous operation of the color and the form of geometrical figures cut from colored paper.<sup>2</sup> These results were obtained by the method of paired comparisons, the most usual tool in the experimental study of affection. In this investigation a great many introspective reports were obtained from observers at various stages of practice but were not fully presented for the reason that they threw but little light upon the immediate problem. These protocols, however, bear quite intimately upon the nature of the material which the method of paired comparisons yields, and it is proposed in the present paper to study them with especial regard to the nature of the affective judgment.

Titchener in 1908, discussing the nature of affection in the light of the experimental work available at that time, concluded that affection could be neither sensation nor attribute of sensation.<sup>3</sup> Since then, however, the face of introspective psychology has been changed by the realization of the need for a constant differentiation between mental process on the one hand and meaning on the other.<sup>4</sup> Young noted how affective judgments may be meanings of preference, not dependent directly upon affective process;<sup>5</sup> but he was not concerned with

<sup>1</sup> From the Psychological Laboratory of Clark University. The present paper is abbreviated for publication by the omission of many introspective reports. A bound manuscript containing detailed protocols will be found under the same title in the Clark University Library and may be borrowed under the usual courtesies of library exchange.

<sup>2</sup> M. Yokoyama, Affective tendency as conditioned by color and form, *Amer. J. Psychol.*, 1921, 32, 81-107.

<sup>3</sup> E. B. Titchener, *Psychology of Feeling and Attention*, 1908, 1-168, esp. 33-78, 167 f.

<sup>4</sup> Orth's distinction in 1903 between feelings and *Bewusstseinslagen* was, of course, prior to the full recognition of the relation of meaning to conscious attitude: J. Orth, *Gefühl und Bewusstseinslage*, 1903.

<sup>5</sup> P. T. Young, An experimental study of mixed feelings, *Amer. J. Psychol.*, 1918, 29, 237-271, esp. 252-258: cf. also C. E. Kellogg, Alternation and interference of feelings, *Psychol. Monog.*, 1915, No. 79, esp. p. 89.

raising the fundamental issue, and sought primarily to rule out from his results a class of cases that was of a different order from those with which he was mainly concerned. The present writer seeks to raise the major question whether the method of paired comparisons can ever be relied upon to yield material other than affective meanings. He has no hope of settling finally the issue of the existential nature of affection, but believes that a demonstration of the inapplicability of this orthodox method to an experimental study of affective processes is worth the making. Certainly, so it seems to him, it is no longer possible for the experimental psychologist to assume that the mere utilization of a method assures results that exhibit laws of affective process.<sup>6</sup>

### *Observers*

Our *O*'s were peculiarly well qualified to bring out distinctions between meaning and process, because they had been sensitized in the 'atmosphere' of the Clark Laboratory to the process-nature of introspective material and to a persistent distinction between *Beschreibung* and *Kundgabe*. On the other hand, the very fact that the problem of meaning is so much 'in the air' at Clark may perhaps be thought to have predisposed them unfairly toward the discovery of meanings. However, without some such sensitization, which amounts to little more than a training in the refinement of modern introspection, it would have been hopeless to seek results which bear upon our problem at all.

An *O*, in approaching this problem, is apt to establish by his protocols his own theoretical bias. Hence we note here these biases, as indicated in formal statements by the *O*'s themselves. Observer B, the director of the laboratory, stated that for a number of years he had been sceptical of affection as an existential mental process and had been becoming constantly more convinced that it could be adequately accounted for as meaning or act. Observer D, a psychologist of some years standing, stated that she began the experiment without definite theoretical biases, but with more or less sympathy toward the theory that affection may be accounted for as meaning. Observer F, assistant professor of psychology, stated that he had always held that affections were simple and ultimate psychological processes, capable, except in clearness, of attributive description and coordinate with sensations and

<sup>6</sup> As, it would seem, could Titchener, *Philos. Stud.*, 1902, 20, 382-406; S. P. Hayes, *Amer. J. Psychol.*, 1906, 17, 358-393; W. S. Foster and K. Roese, *ibid.*, 1916, 27, 157-170.

images. Observer P, a graduate student of three years training, was less interested in the general theoretical consideration of affection, but stated that he believed in the possibility of rendering reports upon feeling as independent mental elements. The protocols of Observer M are not considered in this paper for the reason that her lack of introspective training at the time of the experiment leaves her reports equivocal with respect to the point at issue. All the O's, it may be said, however, insisted that they approached the experiment with an open mind, and that their sole motive was to make accurate and detailed descriptions and analyses of the experiences observed under these particular experimental conditions.

### *Quantitative Summary of Introspections*

The absolute frequencies of the occurrence of various affective items in the protocols are presented in Table I, which thus constitutes a rough summary of the introspections and of the individual differences of report among O's. In general, it may be said of the table, the first items refer to the two stimuli compared: "2 P" (=two pleasantnesses) means that pleasantness was reported in connection with each stimulus, "P and U" (=pleasantness and unpleasantness) means that one stimulus was pleasant and the other unpleasant; "1 P" (=one pleasantness) means that one stimulus was pleasant and that there was no affection connected with the other stimulus; and so on. The item "affective or aesthetic characterizations" covers reports of the stimuli as "nice," "good," etc.

TABLE I

ABSOLUTE FREQUENCIES OF INTROSPECTIVE REPORTS AS CHARACTERIZED BY THE AFFECTIVE CONTENT INDICATED. P = PLEASANTNESS; U = UNPLEASANTNESS

Observer	B	D	F	P
2 P.....	12	4	2	1
P and U, or P and not-P.....	3	0	1	9
2 U.....	2	1	2	1
1 P.....	9	0	3	16
1 U.....	1	3	16	6
Affective or aesthetic characterization.....	6	30	7	5
No P or U.....	1	0	17	3
P or U not connected with stimulus.....	3	1	4	3
Total number of introspections, excluding duplications.....	31	36	34	39

*Summary of Introspections*

*Observer B.* The *Aufgabe* was seldom focal for B in the foreperiod. He was only vaguely aware of the instructions in terms of rigid bodily position and the fixation of attention upon the screen.

The process of comparing varied for him from time to time. As a rule, however, the initial tendency to determine a preference manifested itself with the first perception of one stimulus of the pair and took the form of an incipient absolute judgment of that stimulus; a judgment which never came immediately, but was always preceded by organic and kinaesthetic processes of a certain pattern, accompanying the visual perception and forming in turn the basis of the judgment. B's attention would then shift to the other stimulus and the same procedure would be repeated. During this period he would form a tentative, preferential judgment. The reaction and the announcement of the final judgment usually came with a second perception of one of the alternatives. In cases of difficult judgment the processes were more complex and involved. B would fixate now one and then the other stimulus several times in quick succession, with consciousness dominated by a general emotional stir-up that would seemingly delay the usual organic "building-up-process-for-pleasantness" (see below). In judgment of this kind, the decision was generally accompanied by awareness of the *Aufgabe*.

B's affective judgment was mediate throughout. He never observed pleasantness and unpleasantness as existential mental processes. He reported them as conscious attitudes or "meanings," carried by complexes of organic and kinaesthetic sensations or images. In order to declare a preference, therefore, it was always necessary for him to have this sensory mediator, and he was thus always in search of some such cue. (In the writer's previous paper he has characterized this attitude as a sensorial attitude.<sup>7</sup>)

In the early stages of the experiment, B was uncertain of the proper cue for affection. At first he sought to base his judgments of pleasantness upon an *Eindringlichkeit* which consisted of the bare perception of the stimulus with high degree of clearness, intensity and distinctness (*Schärfe*) plus the kinaesthetic response of fixation and head-movement toward the stimulus.

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<sup>7</sup> *Op. cit.*, p. 88.

"Eye-movement went back to right stimulus and the eye stuck there, as pattern of eye-kinaesthesia, which was quite intense and carried the meaning: 'Striking color.' Then at once automatically throat-kinaesthesia, which meant incipient judgment for the right" (Nov. 18, 1919). "It was *eindringlich*, i.e., a kinaesthetic context of receptivity. This kinaesthetic context was mostly eye-kinaesthesia, but had a little bodily adjustment in it too. . . . I do not know if anything carried the *P* or was the *P*. It may be that part of the eye-kinaesthesia in the *Eindringlichkeit*-context was or meant *P*, but I am not sure" (Nov. 26, 1919).

In more advanced stages, the criterion of pleasantness changed from *Eindringlichkeit* to what he termed a "building-up-process-for-pleasantness," which consisted of a suffused organic "glow," in quality something like the organic ache of stretching a fatigued muscle:

"Fixation of yellow with yellow both distinct and clear, and an organic attitude (organic sensations in trunk welling up, like a very mild 'affection' in the popular meaning of that term) that I might feel for a pretty tone or a little child. In content simply a pressure-pain glow (pleasant pain, of course) in the stomachic region or just above. Not unlike appetite in sensory nature; totally different in meaning. . . . When the glow got to a given pitch, it meant that the judgment was formed" (Dec. 11, 1919). "I am sure that the thing that builds up *P* is something that is sensory in nature and belongs to the tactual-kinaesthetic-organic groups of qualities. It is very weak and never very clear. I can scarcely localize it, yet I am sure it is in 'me' and not in my legs and arms. I should say it was above the abdomen and partly in the trunk, but that it also involves the facial muscles. Verbally I should label it a *glow*, perhaps a warm glow; but I do not think the sensation warmth actually figures. The phrase is intended to convey the meaning rather than the content. As sensory content I take the thing to belong to the class of pleasant organic pressure-aches, in which the pleasant ache of stretching fatigued muscles belongs. But it is nowise so distinct as the stretching complex; it is just a tiny, little, obscure, glowing tingle, as much pained as a bit of food going into the stomach under one of Carlson's appetites, and by no means so definitely localized" (Dec. 20, 1919).

Although he found exact localization impossible (*vide supra*), at times he reported this organic complex in chest and face, and at other times in the region of stomach and trunk. The 'building-up' process was slow at the very first; later it became very rapid, and still later its contents began to drop out of consciousness. In the final stage, it degenerated to a mere kinaesthesia of adjustment toward the stimulus wherein it was differentiated from '*Eindringlichkeit*' only by presence of a limited amount of "glow" or a trace of the kinaesthesia of a smile. It was at this stage of the experiment that B remarked that mental content might not be essential to the making of a preferential judgment.

"The attitude of preference developed for the right. It is a bare skeleton of the old 'building-up process' now. I look at the stimulus and turn (in imagery, I suppose) toward it, and sustain this attitude. The whole thing came in this time not immediately, but it built up very rapidly. When it had got built up, it was absolutely nothing more than a kinaesthesia of adjustment toward the stimulus, and it meant: 'I prefer that'" (Jan. 20, 1920). "There is a bit of process to the *P*, but less than there used to be; *i.e.*, in perceiving the circle there was a hint of a glow; conscious attitude, perhaps a trace of the kinaesthesia of a smile. Most of the *P*, however, was sheer meaning; *i.e.*, the circle was a pleasant circle, I knew it for a pleasant circle. My guess is that I am reacting to the meaning of *P*, that the content that carries the *P* is not essential to it, but generally exists" (Jan. 27, 1920).

Unpleasant experiences were infrequent with B and he furnished no complete description of a carrier of unpleasantness. One of his reports states:

"I can't describe *U*. I think it is some sort of organic pattern in my body. I actually believe that it is as much like the dull pressure-aches of nausea as *P* is like the bright contacts of tickle; but it is a far cry from *P* and *U* to these simple sensory things" (Dec. 20, 1919).

*Observer D.* Throughout the foreperiod, D maintained a relaxed bodily position. She had a vague consciousness of the *Aufgabe* to judge and to introspect carried in terms of kinaesthesia in throat and neck and relatively intense strains of the eyes from fixation upon the exposure apparatus.

Her consciousness during the main period consisted chiefly of visual and kinaesthetic-organic experiences. The initial act of preferring for her usually took the form of an attitude of incipient acceptance or rejection of one or the other stimulus, accompanied on many occasions by verbal (imaginal or actually innervated) characterizations of the stimuli. In all other respects her procedure in comparing was similar to B's.

D's attitude of acceptance consisted mainly of kinaesthesia in the head (an incipient nod) and an organic "glow" (chiefly circulatory and respiratory), or of general bodily relaxations and such vocimotor processes as: "That's a nice color;" "rather nice;" "it's a nice shape;" *etc.*

"When the red was fixated, there was a pleasant glow, accompanied by imagery in vocimotor terms: 'That's a lovely red.' I am retrospectively aware that there was a brief arrest of respiration, followed by a deep inspiration which carried the meaning of 'general satisfaction'" (Nov. 13, 1919). "My eyes followed the outline of the figure counter-clockwise from lower right-hand corner. At the same time there was, besides the eye-movement-kinaesthesia, a slightly changed bodily attitude, especially involving kinaesthesia from holding head in particular way. It meant: 'That's a nice compact figure'" (Nov. 18, 1919). "There followed a particular kinaesthetic and organic attitude that meant my affective reaction to this particular stimulus: 'Rather nice'

is what this bodily attitude meant. . . . The consciousness that conveyed the preference was a very vague affair, partly respiratory (as slight inhibition of breathing), partly kinaesthesia of the head (an incipient nod), partly the very turning of the eyes to the accepted stimulus" (Dec. 9, 1919). "There was some eye-kinaesthesia as my eyes followed the outline of the figure, and there was an 'evaluating consciousness' which consisted chiefly of mild but 'pleasantly toned' organic sensations (chiefly respiratory and circulatory) and a bit of throat-kinaesthesia that carried the meaning: 'It's a nice shape'" (March 9, 1920).

The attitude of rejection was not fully described. It seems to have been essentially a complex of kinaesthesia in the region of the diaphragm (constrained breathing, a feeling of tightness), throat-kinaesthesia (similar in quality to nausea), and the accompanying verbomotor processes meaning: "That's not so nice;" "dislike;" *etc.*

"Next came a kinaesthetic set which carried the meaning: 'That's not so nice a figure; it takes too much eye-movement to see it clearly'" (Nov. 18, 1919). "Then followed an attitude of incipient rejection of this stimulus in terms of kinaesthesia in diaphragm region, *i.e.*, constrained breathing; and a bit of throat-kinaesthesia that was related to nausea" (Jan. 8, 1920).

Like B, D found no affective elements as distinguished from sensations. *P* and *U* to her were simply conceptual terms, embracing, among other things, affective characterizations such as "nice," "lovely," "not nice," *etc.*, and designating at the same time an attitude of acceptance or of rejection, which was in content nothing more than a group of kinaesthetic and organic processes. These organic and kinaesthetic sensations appear to be for her a *sine qua non* of affectively toned experiences, for the reason that *P* and *U* are regarded as meanings carried by these organic and kinaesthetic sensations.

*Observer F.* The foreperiod in the early part of the experiment may be characterized for this *O* as a period of active attention. His eyes were always fixed upon that portion of the screen where the left-hand stimulus would appear. There was a focal visual perception of a limited part of the screen, and intense kinaesthesia in brows, eyes, jaw, neck, chest and abdomen; all of which constituted F's attitudinal response to the *Aufgabe*. Later on this attitude gradually changed into one of passive attention, in which the kinaesthetic and organic processes were very much less marked than before and the visual perception of the screen was alone focal.

In the initial stages of practice, the main period was especially rich in affective and kinaesthetic experience, although the clearest part of consciousness was always the visual perception of the stimuli. In these stages F, like B, made a tentative, absolute judgment of *P* and *U* separately upon each



of the alternatives before determining his preference. These judgments were almost invariably accompanied either by some kinaesthetic-organic adjustment (a nod, strains in the eyes, kinaesthesia in nose and upper lip, or the like) or by certain imaginal or actually innervated verbal expressions, such as: "not so good;" "blue, fine;" *etc.*

"When the screen was raised I was aware of a rapid focal visual perception of the right-hand form. Great *P* raising rapidly to an intense maximum. Verbomotor processes: 'Oh, that one' accompanied by motor image of drawing my hands apart; left hand upward and right hand downward" (Nov. 13, 1919). "Very focal and clear perception of it (stimulus) with rapidly appearing *P*, which rapidly increased in intensity. Verbomotor 'Blue, fine.' Rapid relaxation of bodily strains, deep inhalation and closing of the eyes" (Nov. 13, 1919). "Non-focal kinaesthetic sensations (actually innervated) in nose and upper lip (facial expression of disgust). This meant to me a very unpleasant stimulus" (Nov. 18, 1919).

The termination of preferential judgment usually came while F's eyes were firmly fixing the stimulus and was followed by general bodily relaxations. The difficult judgments were, as for the other *O*'s, characterized by several rapid shifts of fixation and by the presence of unpleasant feeling and strains.

In the later stages the process of comparing became highly mechanized and the final judgment came immediately upon perceiving both stimuli, without even slight *P* or *U* entering consciousness. F's judgment now was reduced to a motor attitude, which consisted of the visual fixation of the stimulus preferred and of his mechanical reaction upon the key.

"This visual perception was terminated by closure of the eyes which was either accompanied by or immediately followed by a very mechanical reaction, both of which were without other antecedent so far as I am aware. . . . I had no affective processes in this experiment whatever" (Jan. 29, 1920). "This visual perception was terminated by a series of processes which took place in the following order. (1) Absolutely mechanical and automatic reaction on the key without other conscious antecedent. (2) Closure of the eyes. (3) Rapid exhalation. (4) Relaxation of the widespread bodily and muscular strains of the foreperiod. . . . I am sure there were no affective processes in the entire experience" (Feb. 12, 1920). "Almost at once upon the beginning of the visual perception I found that I was reacting on the key in a perfectly mechanical fashion and without other antecedent" (March 4, 1920).

F reported *P* and *U* as if they were existential mental stuff. They were always accompanied by organic or kinaesthetic processes of some sort, but F never saw any connection between these processes and the *P* and *U*. He habitually noted the intensity and the temporal course of a given affection: "Very focal and clear perception of it [stimulus] with rapidly

appearing *P* which rapidly increased in intensity;" "relaxation of general bodily strains and rapid decrease in the intensity of *U*." On the other hand there is nothing in *F*'s reports that insists unequivocally upon the independent status of affection; most of his statements could have been made of conscious attitudes. His judgments, moreover, appear to have been conditioned directly upon the stimuli, especially in the final stages of the experiment, and not to have been consciously mediated by the reported *P* and *U*. (Cf. quotations above.)

*Observer P.* *P*'s mechanism of comparing was similar to the other *O*'s. The foreperiod was characterized for him by the 'attitudinal set' or '*Einstellung*' for carrying out the instructions. This set consisted of muscular strains about neck and shoulders, and organic sensations about lower oesophageal and upper stomachic regions. A general tenseness of body remained constant, but non-focal, until the appearance of the stimuli.

With exposure *P* fixed his attention alternately upon the two stimuli, evaluating each of them in its turn. Rapid, telescoped, verbal characterizations at times would accompany the perceptions: "That red's good, but orange not bad;" "triangle," etc. At the beginning of the evaluating process the non-focal tenseness of the foreperiod would increase momentarily in intensity, and then gradually break down. There would then be a general 'welling up' of organic sensations or an organic 'glow' in the region of stomach and oesophagus, accompanied by *P* or *U* as the case might be, and issuing in the formation of the preferential judgment. When judgment was difficult, the period of evaluation would be much prolonged and several shifts of fixation would take place. In these cases consciousness was dominated by unpleasantly toned organic processes, and the decision occurred only after reappearance of the awareness of the *Aufgabe*.

"This [perception of the form at right] was followed by rapid welling up of acute, intense, organic sensations, localized in oesophagus and stomach, rather intense *U*. Increase in the bodily strains, especially eye-kinaesthesia and in skull" (Nov. 15, 1919). "Focal visual perception of the stimulus at the right and very non-focal visual perception of the stimulus at the left and very non-focal, indistinct, vocimotor-auditory imagery of 'red,' accompanied by slight *P*. . . . Then stimulus at right dropped out to a very non-focal level. The stimulus at left then again became focal. This was accompanied by the slight organic sensations localized in the region of stomach. Then reaction to the 'red-consciousness'" (Dec. 23, 1919). "Fairly focal visual perception of the stimulus, accompanied immediately after by the image (visual) of the left; then *U*. This was accompanied by organic sensations around stomach and oesophagus, a slight increase

TABLE II  
OCCURRENCE OF VARIOUS DATA OF CONSCIOUSNESS (MEANINGS, PROCESSES) AT VARIOUS STAGES OF THE EXPERIMENTAL PROCEDURE. 4 OBSERVERS. P = PLEASANTNESS; U = UNPLEASANTNESS

Obs.	Datum	Initial Stage	Second Stage	Third Stage	Final Stage
B	P and U as: Process-basis of P and U.	Psychological meaning Eindringlichkeit = P. Organic and kinaesthetic complexes = P.	Psychological meaning Building - up - process (organic) = P. Organic and kinaesthetic complexes = P.	Degenerated psychological meaning A trace, merely, of building - up - process (organic) = P.	Practically biological meaning P = stimulus itself. Rarely incipient tendency for building-up-process.
	Genetic decay of process-basis.	Rich and well-marked.	Rich and well-marked.	Partial decay of organic process. Rarely bodily attitude only.	Almost complete decay of organic processes. Usually bodily attitude only.
D	P and U as: Process-basis of P and U.	Psychological meaning Attitude of acceptance (organic and kinaesthetic) = P. Attitude of rejection (organic and kinaesthetic) = U. Rich and well-marked.	Psychological meaning Attitude of acceptance (organic and kinaesthetic) = P. Attitude of rejection (organic and kinaesthetic) = U. Rich and well-marked.	Practically biological meaning Vestigial remains of attitudes of acceptance and rejection.	Practically biological meaning Vestigial remains of attitudes of acceptance and rejection.
	Genetic decay of process-basis.	Rich and well-marked.	Rich and well-marked.	Partial but incomplete decay; occasional organic and kinaesthetic processes.	Partial but incomplete decay; occasional organic and kinaesthetic processes.
F	Concomitant relevant sensory processes.	Existential mental processes, either unique elements or conscious attitudes Organic and kinaesthetic processes.	Existential mental processes, either unique elements or conscious attitudes Organic and kinaesthetic processes.	Preference = biological meaning No longer P and U as mental process Bodily attitude of fixation of stimulus, but no prominent organic or kinaesthetic processes.	Preference = biological meaning No longer P and U as mental process Bodily attitude of fixation of stimulus, but no prominent organic or kinaesthetic processes.
	Genetic decay of relevant processes.	Rich and well-marked.	Rich and well-marked.	Almost complete decay of affective and organic processes.	Almost complete decay of affective and organic processes.
P	P and U as: Concomitant relevant sensory processes. Genetic decay of relevant processes.	Existential mental processes, either unique elements or conscious attitudes Organic and kinaesthetic processes.  Rich and well-marked; practically no decay.			

in muscular tension (general, non-localizable) and by kinaesthesia about eyebrows" (Jan. 21, 1920). "Rapid welling up of intense organics about the stomach and oesophagus, accompanied by *P*" (Jan. 31, 1920). [Difficult case]: "Non-focal rapid vocimotor imagery: 'Huh, neither' followed by very rapid shift of fixation from right to left and back again (4 or 5 times), accompanied by organic sensations. Then slight awareness of *Aufgabe* and vocimotor imagery: 'Oh, left is a little better'" (Nov. 18, 1919).

In the advanced stages *P*'s judgment was mechanized and was made at times without presence of reportable *P* or *U*.

Like F, *P* reported *P* and *U* as if they were mental processes distinct from sensations. He noted their intensities and durations in making comparisons. The organic and kinaesthetic sensations, which were concomitant with affections, he almost always localized in the region of the oesophagus and of the stomach. He gave no clear-cut descriptions of these sensory processes. It seems that the organic glow, usually concurrent with *P*, was of a milder, more diffused nature and thus differentiated from the acute, intense, straining quality that appeared closely associated with *U*.

### General Summary

Table II constitutes a summary of the protocols fractionated into successive genetic stages for those *O*'s for whom marked serial changes of consciousness appeared. The table gives for B and D the nature of the meanings of *P* and *U*, the process-bases of these meanings, and a characterization of the extent of the decay of the sensory content. In accordance with Titchener's context-theory of meaning,<sup>8</sup> the table uses the term "psychological meaning" for a meaning that is reportable both as such and in terms of its sensory carrier, and "biological meaning" for a meaning reportable as such that occurs with little or no observable sensory basis. F and *P*, who imply the independent elementary status of feeling, are summarized in the table by a statement of concomitant organic processes and a characterization of the decay of the total conscious affective experience.

The question of the mental status of the affective process comes up as an issue between observers. B and D were emphatic in their denial of *P* and *U* as directly observable, nonsensory, unique, mental processes, but reported them consistently as unique meanings, carried by complexes of organic

<sup>8</sup> For general statements of the context-theory of meaning, see E. B. Titchener, *Thought-Processes*, 1909, 175 ff.; *Text-book of Psychology*, 1910, 367 ff.; H. P. Weld, *Meaning and processes as distinguished by the reaction method*, *Titchener Studies in Psychology*, 1917, 181 ff.

and kinaesthetic processes. In any case observable processes were to be expected, since meanings in the early stages of their life history can be expressed in terms of existential sensory process. The issue hinges therefore upon the determination of the sphere in which *P* and *U* are unique and possess independent status, the location of this sphere in the realm of observable mental process. Unfortunately the question is one that we cannot finally determine here; we must content ourselves merely with an additional contribution. B called *P* an "attitude-for-pleasantness" and D an "attitude of acceptance." The organic and kinaesthetic bases of these attitudes were (especially for B) very vivid in the early consciousnesses; they underwent, however, the usual degeneration to which the sensory carriers of meaning are subject, and as the experiment progressed they became finally illusive tags of sensation or disappeared altogether. In other words, "psychological meaning" became "biological." In contrast to B and D, F and P reported *P* and *U* as if they were existential mental processes, although they found no occasion especially to assert their existentiality. It is not to be expected that an *O* will especially assert the obvious, and it is thus a reasonable interpretation of their reports to infer that the process-status of feeling was obvious to them and that a present feeling required therefore nothing further than its mention. Nevertheless, when the reports of F and P are taken in the light of the scepticism of B and D, we may perhaps wonder whether the readiness with which *P* and *U* are spoken of as such is a readiness that comes from their independent existential status or the readiness with which conscious attitudes are reportable as mental units. The latter interpretation is supported by the course of F's consciousness (Table II), in which a degeneration of the affective experience was covariant with the degeneration of the concomitant organic and kinaesthetic sensory content.

Taken all in all, our findings may be summarized with respect to the particular point at issue as follows:

1. *P* and *U* may be meanings for any observer; for B and D always; for F consistently at one stage; for P occasionally.
2. Evidence for *P* and *U* as nonsensory existential processes is weaker than evidence for them as sensory mental processes. B and D explicitly describe them as sensory; F and P do not explicitly describe them but merely name them. There is no statement in any introspection that could not have been made of a conscious attitude.

3. Organic sensory content is the *sine qua non* of *P* and *U*, except in advanced stages of degeneration; for B and D as carriers of the pleasant and unpleasant meanings; for F as concomitant or carrier; for P as concomitant.

4. Conscious *P* and *U* drop away from the affective perception in the course of its decay, thus following the law of perceptual contextual sensations.

5. The loss of *P* and *U* is concomitant with the diminution or disappearance of the sensory organic contents of consciousness.

6. The two preceding items of fact indicate that *P* and *U*, whether as sensory or nonsensory, are to be thought of as integral to the total organic complex.

It follows therefore:

(a) That *P* and *U* (of the method of paired comparisons) are most universally and definitely statable as meanings;

(b) that on the side of process *P* and *U* are predominantly sensory; and

(c) that there exists a portion of the process-aspect of *P* and *U* which is equivocal in its essential nature (*i.e.*, it is not certain whether it is sensory or nonsensory), but that this equivocal portion of the process-complex follows a law of sensory decay.

The case is by no means conclusive against the status of affection as independent mental process. For one thing it applies only to the method of paired comparisons. It does show, however, that much greater concern needs to be given to the part played by meaning and the illusive carriers of meaning in the consideration of feeling as elicited under this method. Upon the broader extension of these conclusions to the problem of feeling in general the writer is unprepared even to make a surmise. He feels, however, that his results indicate that the method of paired comparisons can no longer be taken as a typical laboratory setting for affections of process-nature, and that the experimental establishment of the process-affection is therefore more than ever in need of an experimental method.